REMARKS/ARGUMENTS

Claims 1-12, 23, 25, and 26 are active. Claims 13-22 have been withdrawn from consideration. No amendments have been made, but a clean copy of the claims is provided for the convenience of the Examiner.

Restriction/Election

The Applicants previously elected with without traverse **Group I**, claims 1-12, directed to a composition comprising a sulfonylurea and an alkoxylated glyceride. The Applicants respectfully request that the claims directed to any non-elected subject matter which depend from or otherwise include all the limitations of an allowed elected claim, be rejoined and allowed upon an indication of allowability for the elected claim, see MPEP 821.04.

Rejection—35 U.S.C. §103(a)

Claims 1-12, 23, 25 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Maeda, et al., U.S. Patent No. 5,830,827, in view of Anderson, et al., *Alkoxylated Glyceride Emulsifiers in Agricultural Applications*. This rejection cannot be sustained because neither document suggests or provides a reasonable expectation of success for the superior herbicidal properties of the specific combination of a herbicidal sulfonylurea and an alkoxylated glyceride of the invention.

The Office has not provided any reason why the prior art would have motivated one of ordinary skill in the art to *select* the particular combination of a herbicidal sulfonylurea (as opposed to numerous other herbicidal compounds described by the cited art) and an alkoxylated glyceride (in distinction to any of the numerous other excipients described by the cited art).

The section of the OA bridging pages 4-5 concludes "that it would have been obvious. . .[to] include a nonionic surfactant selected from polyoxyethylene hydrogenated castor oil" to "contribute to the improvement of the physical properties of the formulation". However, the Examiner's argument does not address the motivation to select an alkoxylated glyceride as opposed to any of the other formulants "used for contributing to the improvement in the physical properties of the granular herbicide" (Maeda, col. 2, lines 33-35). Similarly, the Examiner's argument does not explain why one would have selected an alkoxylated glyceride in combination with a sulfonylurea herbicide instead of some other herbicide. At best, this statement of motivation to make the invention is a general one that says that any of the formulants recited by Maeda could have been combined with any of the herbicides disclosed by Maeda.

The Examiner citing to the *KSR* decision asserts that Maeda discloses a finite number of identified predictable solutions and thus provides a reasonable expectation of success for the combination of a sulfonylurea herbicide and an alkoxyated glyceride. However, the Applicants have already demonstrated that Maeda does not offer predictable solutions or any reasonable expectation of success for the invention. This is because Maeda encompasses numerous combinations that are not effective and do not produce the enhanced herbicidal effects shown for the combination of the invention. The experimental data of record show that a representative number different sulfonylurea herbicides had significantly increased herbicidal activity when admixed with numerous different alkoxylated glycerides, but much less activity when admixed with other non-ionic surfactants (e.g., *Citowett* or *Tween-20)*; or cationic surfactants (e.g., *Frigate*). Maeda fails to provide a reasonable expectation of success for the enhanced herbicidal properties of such a selection.

The Applicants' prior arguments regarding the suggestion to selectively combine these two components, including their extensive experimental data have not been addressed

or rebutted, possibly, in view of the application of the new Anderson reference. While Anderson is relied upon for teaching alkoxylated glycerides (specifically, ethoxylated glycerides) "as effective and safe emulsifiers" (OA, page 4, lines 9-10), it does not suggest selectively combining these with a herbicidal sulfonylurea, nor provide a reasonable expectation of success for the enhanced herbicidal properties achieved by this selection as opposed to selection of some other surfactant. Anderson teaches away from the equivalence of different surfactants at several points.

First, Anderson states on page 136 that "No other ethoxylated or alkoxylated glycerides are specifically approved. . ." by EPA regulations. Clearly, one of ordinary skill in the art at the time of invention would not have had a reasonable expectation of success in substituting non-castor oil based alkoxylated glycerides for other types of alkoxylated glycerides based on this teaching.

Second, Anderson expressly refers to "the unique qualities of castor-based surfactants" due to compositional differences with other surfactants. Based on this teaching one of ordinary skill in the art at the time of invention would not have recognized the equivalence of different alkoxylated glycerides for various agricultural applications discussed by Anderson.

Lastly, the Anderson results show that different alkoxylated glycerides had different emulsion stabilities with various (non-sulfonylurea) herbicides, see e.g., Tables 8 and 9 showing that some combinations produced very good or good emulsions, while others did not. Based on these divergent results one of ordinary skill in the art at the time of invention would not have had a reasonable expectation of success that alkoxylated glycerides would have enhanced herbicidal properties of a sulfonylurea herbicide.

At the bottom of page 5 of the OA the Examiner suggests that the experimental data of record, which compare herbicide combinations containing other non-ionic surfactants like

Citowett or *Tween* with the herbicide combinations containing alkoxylated glycerides of the invention, do not adequately demonstrate the superior properties of this combination compared to the prior art. This argument is based on an allegation that the experimental data of record do not compare the invention to "the closest prior art" which is deemed to be the herbicide combinations containing sodium dioctylsulfosuccinate or sodium napathelenesulfonate (see the last two lines on page 5 of the OA). However, these so-called "closest prior art" compositions do not contain non-ionic surfactants at all. Both sodium dioctylsulfosuccinate or sodium napathelenesulfonate are anionic surfactants different from the non-ionic surfactants of the invention, see col. 2, lines 37-50 at lines 37 and 49. Such a comparison is not appropriate since it would be non-analogous to the invention due to the chemical differences between anionic surfactants and non-ionic surfactants.

On the other hand, the experimental data of record compares the combination of the invention to combinations containing non-ionic surfactants other than the non-ionic alkoxylated glycerides of the invention. These much closer comparisons show that differences amongst non-ionic surfactants produce different results and show that merely selecting any non-ionic surfactant is not sufficient to significantly enhance the herbicidal properties of a sulfonylurea herbicide. These comparative data of record are reiterated below from the prior response.

(A) Comparative surfactants. The specification shows the superior herbicidal properties of the invention when an alkoxylated glyceride is selected in comparison to combinations containing *Citowett* and *Frigate* herbicide surfactants. Maeda, col. 2, line 55 discloses *Citowett* which corresponds to "polyethylene alkylaryl ether", but is silent about

whether to select an inferior[1] surfactant like *Citowett* or an alkoxylated glyceride required by the invention.

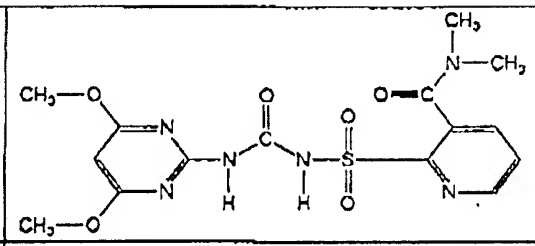
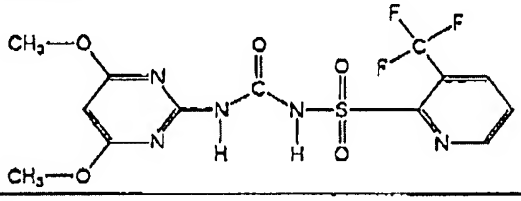
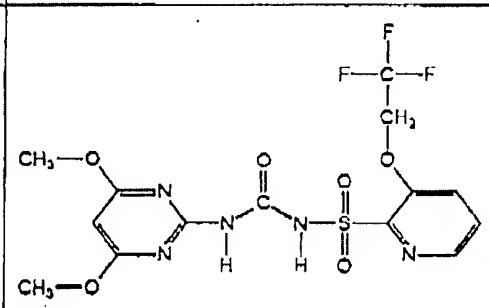
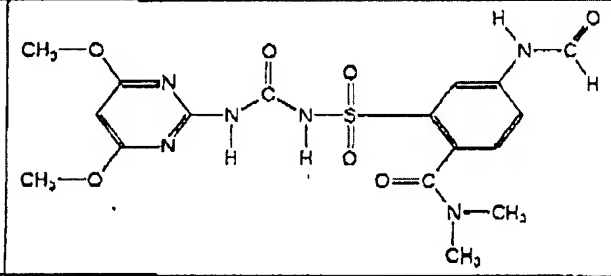
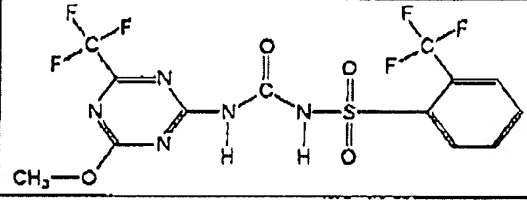
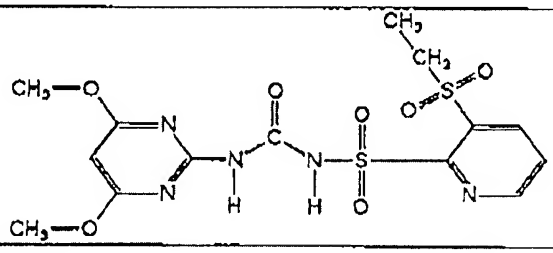
Maeda, col. 2, lines 57-58, discloses "polyoxyethylene sorbitan fatty acid ester" which corresponds to the comparative surfactant Tween 20 (polyoxyethylene sorbitan monolaurate) described in Test Example 2 of the present application. As shown in Table 2 on page 49 of the specification the use of *Tween 20* in combination with a sulfonylurea herbicide produced significantly inferior herbicidal effects compared to combinations containing each of the eight different alkoxylated glycerides tested.

Sulfonylurea herbicide combinations including *Frigate,* a cationic surfactant, were also compared to combinations containing alkoxylated glyceride surfactant.

Frigate represents conventional art in comparison to alkoxylated glycerides used by the invention as discussed in the *Background Art* section of the present specification.

(B) The superior herbicidal effect is not limited to a single species of sulfonylurea herbicide. The Examples in the specification show that the superior herbicidal effects are obtained for a number of chemically different types of sulfonylurea herbicides and thus provide a representative number of species to support the claimed genus of sulfonylurea herbicides. The table below depicts six different sulfonylurea's (nicosulfuron, flazasulfuron, trifluoxysulfuron, foramsulfuron, trisulfuron and rimsulfuron) used in Examples of the present application. These structures are reasonably representative of the genus of sulfonylurea herbicides and they take into account the variation of chemical structures within this class of herbicides including species representing both the pyridine- and benzene-types of sulfonylurea herbicides (see the ring structures on the right). Accordingly, the Applicants respectfully submit that the Examples in the specification adequately and reasonably represent the genus of sulfonylurea herbicides described by the present claims.

[1] See the inferior herbicidal properties of combinations using *Citowett* in Table 3 (page 50), Table 4 (page 52), Table 5 (page 53)Table 6 (page 54), etc.

Nicosulfuron	
flazasulfuron	
trifloxysulfuron	
foramsulfuron	
tritosulfuron	
rimsulfuron	

(C) The superior herbicidal effect is not limited to single species of alkoxylated glycerides. The superior herbicidal properties of the invention are also supported by results

showing that a representative number of different alkoxylated glycerides in combination with a sulfonylurea herbicide provide superior herbicidal properties. For example, Table 1 on page 47 shows the superior properties of combinations including eight different types of alkoxylated glycerides and a sulfonylurea herbicide. Tables 2 and 3 also provide similar comparisons. In order to improve the herbicidal effects of sulfonylurea, a herbicidal active ingredient has to pass through a wax layer in plant leaves to penetrate into the interior of the leaves. A sulfonylurea is hydrophilic and has relatively high solubility in water and hardly passes through the more hydrophobic wax layer. The inventors have found that selection of an alkoxylated glyceride allows a sulfonylurea to penetrate the wax layer on leaves and exhibit a herbicidal effect inside the leaf. Not all surfactants provide this property.

In the present invention, a surfactant having a structure wherein a fatty acid and glycerol which are similar to vegetable oils and have compatibility with a wax layer are bonded to a hydrophilic polyoxyalkylene is combined with sulfonylurea, whereby the herbicide effect of sulfonylurea can be remarkably improved.

This feature and advantage of the invention is neither described nor suggested by Maeda or by Anderson which cannot suggest selection of this class of surfactants, nor provide a reasonable expectation of success for this property of alkoxylated glycerides in combination with a sulfonylurea herbicide. Consequently for all of these reasons this rejection cannot be sustained.

Rejection—35 U.S.C. §103(a)

Claim 26 was rejected under 35 U.S.C. §103(a) as being unpatentable over Maeda, et al., U.S. Patent No. 5,830,827. This rejection also cannot be sustained for the reasons stated above. Maeda did not suggest selecting the specific combination of one of the alkoxylated glycerides and one of the sulfonylurea herbicides required by this, nor did it provide a

reasonable expectation of success for the superior herbicidal effects of such a combination. The experimental data of record demonstrate the superior herbicidal effects achieved by such a selection compared to selection of other surfactants, including other non-ionic surfactants. Consequently, this rejection cannot be sustained.

Conclusion

In view of the amendments and remarks above, the Applicants respectfully submit that this application is now in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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